

**Van Waters & Rogers Inc.**  
subsidiary of **Univar**

32131 STEVEN WAY  
CONIFER, CO 80433  
PHONE (303) 838-5898  
FAX (303) 838-8059

January 23, 1995

Elliot Zais  
State of Oregon  
Department of Environmental Quality  
Northwest Region  
2020 SW 4th, Suite 400  
Portland, Oregon 97201

OR 7398  
1(c)

1/23/95

FILE COPY

RE: NPDES Permit Application No. 997438  
Van Waters & Rogers Inc.  
Portland, Oregon

Dear Mr. Zais:

As you are aware, the City of Portland has expressed concerns over the levels of certain Group A and B pollutants that potentially could be present in the effluent of the ground water treatment system at the Van Waters & Rogers Inc. (VW&R) Portland, Oregon facility. Specifically, they are primarily concerned over the high BOD, COD, Ammonia, Oil & Grease, and Cyanide concentrations that were listed in Section V of the submitted NPDES Permit application.

VW&R acknowledged these concerns during the meeting that was held last year with Michael Pernolt (Bureau of Environmental Services), Kevin Schanilec (EPA) and yourself, and offered a proposal which would address the concerns of the City. The proposal recommended that the two extraction wells which were to be located in the vicinity of the rail spur be relocated to the western perimeter of the facility since water of higher quality can be produced in this area. As was agreed to in the meeting, VW&R conducted two treatment efficiency tests on samples of ground water collected from monitoring and extraction wells located along the western perimeter. Each sample consisted of approximately 300 gallons collected in equal proportions from wells EXW-1, SMW-4, and SMW-12. For Test 1 and Test 2 the treatment system was run at 20 and 60 gpm respectively.

Table 1 summarizes the resulting analytical data (attached) generated from each ground water treatment system test and compares these results to those presented in the permit application. As you will observe, each analyte in question displays a significant reduction in concentration, which I believe will address the only concerns raised during the public

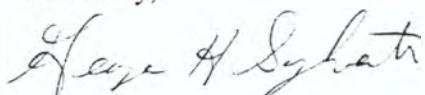


comment period and should remove the final barrier to issuing the NPDES permit for the Portland facility.

I will forward copies of this letter and the attached data to Michael Pernolt and to Kevin Schanilec for their review as well. I will call you and the other two gentlemen later this week to schedule a conference call or a meeting in Portland to discuss finalization of the permit process so that we may begin ground water remediation as soon as possible.

Please contact me at the above address should you have any questions.

Sincerely,



George H. Sylvester  
Senior Project Manager  
Environmental Affairs

CC: M. Pernolt - B.E.S.  
K. Schanilec - EPA  
W. Grotheer - Univar  
M. Konsmo - VW&R

TABLE 1 WATER QUALITY DATA - VW&R PORTLAND, OREGON

PARAMETER	NPDES Appl.	Tst. 1	Tst. 2
Group A Pollutants:			
BOD	1,200 mg/l	36 mg/l	39 mg/l
COD	177 mg/l	37 mg/l	36 mg/l
Ammonia	26.4 mg/l	0.66 mg/l	0.63 mg/l
Group B Pollutants:			
Oil & Grease	20 mg/l	6 mg/l	< 1 mg/l
Cyanide	0.05 mg/l	<0.005 mg/l	0.0007 mg/l



Analytical**Technologies**, Inc.

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 226-5335  
Karen L. Mixon, Laboratory Manager

ATI I.D. # 410101

November 2, 1994

Van Waters & Rogers, Inc.  
32131 Steven Way  
Conifer CO 80433

Attention : George Sylvester

Project Number : -

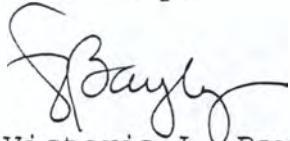
Project Name : VWR - Portland OR

Dear Mr. Sylvester:

On October 13, 1994, Analytical Technologies, Inc. (ATI), received five samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

The analyses for ammonia as nitrogen, biochemical oxygen demand, chemical oxygen demand, color, nitrate/nitrite as nitrogen, sulfide, sulfate, surfactants, total cyanide, total organic carbon and total phenols were performed by a subcontractor. Their report is included as appendix.

Sincerely,

  
Victoria L. Bayly  
Project Manager

VLB/hal/mrj

Enclosure



Analytical Technologies, Inc.

SAMPLE CROSS REFERENCE SHEET

CLIENT : VAN WATERS & ROGERS, INC.

PROJECT # : -

PROJECT NAME : VWR - PORTLAND OR

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
410101-1	GW-TS-EFFL-20	10/12/94	WATER
410101-2	GW-TS-EFFL-60	10/12/94	WATER
410101-3	GW-TS-EFFL-SWR	10/13/94	WATER
410101-4	GW-TS-COLOR	10/12/94	WATER
410101-5	TRIP BLANK	N/A	WATER

=====

----- TOTALS -----

MATRIX	# SAMPLES
WATER	5

----- ATI STANDARD DISPOSAL PRACTICE -----

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

## ANALYTICAL SCHEDULE

CLIENT : VAN WATERS & ROGERS, INC.  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANIC COMPOUNDS	GCMS	EPA 8240	R
OIL & GREASE	IR	EPA 413.2	R
IRON	ICAP	EPA 6010	R
AMMONIA AS NITROGEN	COLORIMETRIC	EPA 350.1	SUB
BIOCHEMICAL OXYGEN DEMAND	ELECTRODE	EPA 405.1	SUB
CHEMICAL OXYGEN DEMAND	COLORIMETRIC	EPA 410.4	SUB
COLOR	COLORIMETRIC	EPA 110.2	SUB
CYANIDE, TOTAL	TITRIMETRIC	EPA 335.2	SUB
NITRATE/NITRITE AS NITROGEN	COLORIMETRIC	EPA 353.2	SUB
PH	ELECTRODE	EPA 150.1	R
PHENOL, TOTAL	COLORIMETRIC	EPA 420.2	SUB
SULFATE	TURBIDIMETRIC	EPA 375.4	SUB
SULFIDE	TITRIMETRIC	EPA 376.1	SUB
SURFACTANTS	COLORIMETRIC	EPA 425.1	SUB
TOTAL ORGANIC CARBON	TOC ANALYZER	EPA 415.1	SUB
TOTAL SUSPENDED SOLIDS	GRAVIMETRIC	EPA 160.2	R

R = ATI - Renton  
SD = ATI - San Diego  
PHX = ATI - Phoenix  
PTL = ATI - Portland  
ANC = ATI - Anchorage  
PNR = ATI - Pensacola  
FC = ATI - Fort Collins  
SUB = Subcontract



Analytical Technologies, Inc.

VOLATILE ORGANICS ANALYSIS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	N/A
PROJECT #	:	-	DATE RECEIVED	:	N/A
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	METHOD BLANK	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	RESULTS
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLEMES	<1

SURROGATE	PERCENT RECOVERY	LIMITS
1,2-DICHLOROETHANE-D4	93	86 - 120
TOLUENE-D8	104	85 - 111
BROMOFLUOROBENZENE	97	81 - 114



Analytical**Technologies**, Inc.

ATI I.D. # 410101

TENTATIVELY IDENTIFIED COMPOUNDS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	N/A
PROJECT #	:	-	DATE RECEIVED	:	N/A
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	METHOD BLANK	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
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NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD



Analytical Technologies, Inc.

ATI I.D. # 410101-1

VOLATILE ORGANICS ANALYSIS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	10/12/94
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	GW-TS-EFFL-20	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	RESULTS
ACETONE	390 D3
BENZENE	2
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	83
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	9 J
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	2
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<1
VINYL CHLORIDE	<10
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERY	LIMITS
1,2-DICHLOROETHANE-D4	102 86 - 120
TOLUENE-D8	105 85 - 111
BROMOFLUOROBENZENE	95 81 - 114

J = Estimated value.

D3 = Value from a five fold diluted analysis.



Analytical Technologies, Inc.

ATI I.D. # 410101-1

TENTATIVELY IDENTIFIED COMPOUNDS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	10/12/94
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	GW-TS-EFFL-20	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN .....	6		16.14

VOLATILE ORGANICS ANALYSIS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	10/12/94
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	GW-TS-EFFL-60	DATE ANALYZED	:	10/20/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	RESULTS
ACETONE	530 D3
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	100
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	3
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	8 J
METHYLENE CHLORIDE	5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	3
TOLUENE	1
1,1,1-TRICHLOROETHANE	1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	4
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERY	LIMITS
1,2-DICHLOROETHANE-D4	86 - 120
TOLUENE-D8	85 - 111
BROMOFLUOROBENZENE	81 - 114

D3 = Value from a five fold diluted analysis.  
J = Estimated value.



Analytical**Technologies**, Inc.

ATI I.D. # 410101-2

TENTATIVELY IDENTIFIED COMPOUNDS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	10/12/94
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	GW-TS-EFFL-60	DATE ANALYZED	:	10/20/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN .....	7		16.11



Analytical Technologies, Inc.

VOLATILE ORGANICS ANALYSIS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	10/13/94
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	GW-TS-EFFL-SWR	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	5

COMPOUNDS	RESULTS
ACETONE	560
BENZENE	<5
BROMODICHLOROMETHANE	<5
BROMOFORM	<25
BROMOMETHANE	<50
2-BUTANONE (MEK)	<50
CARBON DISULFIDE	<5
CARBON TETRACHLORIDE	<5
CHLOROBENZENE	<5
CHLOROETHANE	<5
CHLOROFORM	<5
CHLOROMETHANE	<50
DIBROMOCHLOROMETHANE	<5
1,1-DICHLOROETHANE	20
1,2-DICHLOROETHANE	<5
1,1-DICHLOROETHENE	43
1,2-DICHLOROETHENE (TOTAL)	770
1,2-DICLOROPROPANE	<5
CIS-1,3-DICHLOROPROPENE	<5
TRANS-1,3-DICHLOROPROPENE	<5
ETHYLBENZENE	<5
2-HEXANONE (MBK)	<50
4-METHYL-2-PENTANONE (MIBK)	<50
METHYLENE CHLORIDE	720
STYRENE	<5
1,1,2,2-TETRACHLOROETHANE	<5
TETRACHLOROETHENE	360
TOLUENE	39
1,1,1-TRICHLOROETHANE	280
1,1,2-TRICHLOROETHANE	<5
TRICHLOROETHENE	760
VINYL ACETATE	<50
VINYL CHLORIDE	9
TOTAL XYLENES	8

SURROGATE PERCENT RECOVERY	LIMITS
1,2-DICHLOROETHANE-D4	98
TOLUENE-D8	109
BROMOFLUOROBENZENE	95



Analytical**Technologies**, Inc.

10

ATI I.D. # 410101-3

TENTATIVELY IDENTIFIED COMPOUNDS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	10/13/94
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	GW-TS-EFFL-SWR	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	5

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COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
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NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD



Analytical Technologies, Inc.

VOLATILE ORGANICS ANALYSIS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	N/A
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	TRIP BLANK	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	RESULTS	
ACETONE	<10	
BENZENE	<1	
BROMODICHLOROMETHANE	<1	
BROMOFORM	<5	
BROMOMETHANE	<10	
2-BUTANONE (MEK)	<10	
CARBON DISULFIDE	<1	
CARBON TETRACHLORIDE	<1	
CHLOROBENZENE	<1	
CHLOROETHANE	<1	
CHLOROFORM	<1	
CHLOROMETHANE	<10	
DIBROMOCHLOROMETHANE	<1	
1,1-DICHLOROETHANE	<1	
1,2-DICHLOROETHANE	<1	
1,1-DICHLOROETHENE	<1	
1,2-DICHLOROETHENE (TOTAL)	<1	
1,2-DICHLOROPROPANE	<1	
CIS-1,3-DICHLOROPROPENE	<1	
TRANS-1,3-DICHLOROPROPENE	<1	
ETHYLBENZENE	<1	
2-HEXANONE (MBK)	<10	
4-METHYL-2-PENTANONE (MIBK)	<10	
METHYLENE CHLORIDE	<5	
STYRENE	<1	
1,1,2,2-TETRACHLOROETHANE	<1	
TETRACHLOROETHENE	<1	
TOLUENE	<1	
1,1,1-TRICHLOROETHANE	<1	
1,1,2-TRICHLOROETHANE	<1	
TRICHLOROETHENE	<1	
VINYL ACETATE	<10	
VINYL CHLORIDE	<1	
TOTAL XYLEMES	<1	
SURROGATE PERCENT RECOVERY	LIMITS	
1,2-DICHLOROETHANE-D4	93	86 - 120
TOLUENE-D8	108	85 - 111
BROMOFLUOROBENZENE	85	81 - 114

TENTATIVELY IDENTIFIED COMPOUNDS  
DATA SUMMARY

CLIENT	:	VAN WATERS & ROGERS, INC.	DATE SAMPLED	:	N/A
PROJECT #	:	-	DATE RECEIVED	:	10/13/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE EXTRACTED	:	N/A
CLIENT I.D.	:	TRIP BLANK	DATE ANALYZED	:	10/19/94
SAMPLE MATRIX	:	WATER	UNITS	:	ug/L
EPA METHOD	:	8240	DILUTION FACTOR	:	1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
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NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD



ATI I.D. # 410101

VOLATILE ORGANICS ANALYSIS  
QUALITY CONTROL DATA

CLIENT	: VAN WATERS & ROGERS, INC.	SAMPLE I.D. #	: BLANK
PROJECT #	: -	DATE EXTRACTED	: N/A
PROJECT NAME	: VWR - PORTLAND OR	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240		

COMPOUNDS	SAMPLE	SPIKE	SPIKED	DUP.	DUP.	RPD
	RESULT	ADDED	RESULT	% REC.	SPIKED SAMPLE	
BENZENE	<1.00	50.0	52.9	106	N/A	N/A
CHLOROBENZENE	<1.00	50.0	52.2	104	N/A	N/A
1,1-DICHLOROETHENE	<1.00	50.0	49.7	99	N/A	N/A
TOLUENE	<1.00	50.0	51.4	103	N/A	N/A
TRICHLOROETHENE	<1.00	50.0	49.2	98	N/A	N/A
CONTROL LIMITS				% REC.		RPD
BENZENE				83 - 134		20
CHLOROBENZENE				86 - 133		20
1,1-DICHLOROETHENE				73 - 135		20
TOLUENE				84 - 129		20
TRICHLOROETHENE				84 - 129		20
SURROGATE RECOVERIES		SPIKE	DUP.	SPIKE	LIMITS	
1,2-DICHLOROETHANE-D4		95		N/A	86 - 120	
TOLUENE-D8		100		N/A	85 - 111	
BROMOFLUOROBENZENE		92		N/A	81 - 114	



VOLATILE ORGANICS ANALYSIS  
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.	SAMPLE I.D. # : 410101-1
PROJECT # : -	DATE EXTRACTED : N/A
PROJECT NAME : VWR - PORTLAND OR	DATE ANALYZED : 10/19/94
SAMPLE MATRIX : WATER	UNITS : ug/L
EPA METHOD : 8240	

COMPOUNDS	SAMPLE	SPIKE	SPIKED	%	DUP.	DUP.
	RESULT	ADDED	RESULT	REC.	SPIKED	%
BENZENE	1.63	50.0	55.8	108	55.0	107
CHLOROBENZENE	<1.00	50.0	51.0	102	53.0	106
1, 1-DICHLOROETHENE	<1.00	50.0	51.8	104	52.4	105
TOLUENE	2.04	50.0	55.7	107	55.7	107
TRICHLOROETHENE	<1.00	50.0	48.7	97	49.3	99

CONTROL LIMITS	% REC.	RPD
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BENZENE	74 - 139	20
CHLOROBENZENE	90 - 126	20
1, 1-DICHLOROETHENE	74 - 128	20
TOLUENE	69 - 138	20
TRICHLOROETHENE	84 - 126	20

SURROGATE RECOVERIES	SPIKE	DUP.	SPIKE	LIMITS
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1, 2-DICHLOROETHANE-D4	100	100	86 - 120
TOLUENE-D8	104	105	85 - 111
BROMOFLUOROBENZENE	87	92	81 - 114



Analytical Technologies, Inc.

ATI I.D. # 410101

OIL & GREASE  
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC.  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR  
EPA METHOD : 413.2

DATE EXTRACTED : 10/18/94  
DATE ANALYZED : 10/19/94  
UNITS : mg/L  
SAMPLE MATRIX : WATER

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ATI I.D. #	CLIENT I.D.	OIL & GREASE
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410101-1	GW-TS-EFFL-20	<1
410101-2	GW-TS-EFFL-60	<1
METHOD BLANK	-	<1



OIL & GREASE  
QUALITY CONTROL DATA

CLIENT	:	VAN WATERS & ROGERS, INC.	SAMPLE I.D. #	:	BLANK
PROJECT #	:	-	DATE EXTRACTED	:	10/18/94
PROJECT NAME	:	VWR - PORTLAND OR	DATE ANALYZED	:	10/19/94
EPA METHOD	:	413.2	UNITS	:	mg/L
SAMPLE MATRIX	:	WATER			

COMPOUND	SAMPLE				DUP.	DUP.			
	SAMPLE	DUP.	SPIKE	SPIKED %	SPIKED %	RESULT	REC.	RPD	
	RESULT	RESULT	RPD	ADDED	RESULT	REC.	RESULT	REC.	RPD
OIL & GREASE	<1.00	N/A	N/A	10.0	7.74	77	7.93	79	2

$$\% \text{ Recovery} = \frac{(\text{Spiked Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Spike Result} - \text{Dup. Spike Result})|}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

ATI I.D. # 410101

OIL & GREASE  
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR  
EPA METHOD : 413.2  
SAMPLE MATRIX : WATER

SAMPLE I.D. # : 410090-1  
DATE EXTRACTED : 10/18/94  
DATE ANALYZED : 10/19/94  
UNITS : mg/L

COMPOUND	SAMPLE				DUP.				
	SAMPLE	DUP.	SPIKE	SPIKED %	SPIKED	%	REC.	RPD	
	RESULT	RESULT	RPD	ADDED	RESULT	REC.	RESULT	REC.	RPD
OIL & GREASE	6.00	7.80	26H	N/A	N/A	N/A	N/A	N/A	N/A

H = Out of limits.

$$\% \text{ Recovery} = \frac{(\text{Spiked Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Spike Result} - \text{Dup. Spike Result})|}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

ATI I.D. # 410101

OIL & GREASE  
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR  
EPA METHOD : 413.2  
SAMPLE MATRIX : WATER

SAMPLE I.D. # : 410101-2  
DATE EXTRACTED : 10/18/94  
DATE ANALYZED : 10/19/94  
UNITS : mg/L

COMPOUND	SAMPLE				DUP.			
	SAMPLE RESULT	DUP. RESULT	SPike RPD	SPiked ADDED	% RESULT	SPiked REC.	% RESULT	RPD
OIL & GREASE	<1.00	<1.00	NC	10.0	7.24	72	N/A	N/A

NC = Not calculable.

$$\% \text{ Recovery} = \frac{(\text{Spiked Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Spike Result} - \text{Dup. Spike Result})|}{\text{Average Result}} \times 100$$

Analytical**Technologies**, Inc.

ATI I.D. # 410101

## METALS ANALYSIS

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR

ELEMENT	DATE PREPARED	DATE ANALYZED
IRON	10/19/94	10/21/94

METALS ANALYSIS  
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

-----  
ATI I.D. # CLIENT I.D. IRON  
-----

410101-1	GW-TS-EFFL-20	17
410101-2	GW-TS-EFFL-60	19
METHOD BLANK	-	<0.050



Analytical Technologies, Inc.

ATI I.D. # 410101

METALS ANALYSIS  
QUALITY CONTROL DATA

CLIENT	: VAN WATERS & ROGERS, INC.	MATRIX : WATER					
PROJECT #	: -						
PROJECT NAME	: VWR - PORTLAND OR	UNITS : mg/L					
-----	-----	-----	-----	-----	-----	-----	-----
ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC.
IRON	BLANK	<0.0500	N/A	N/A	0.982	1.00	98
IRON	410138-32	<0.0500	<0.0500	NC	0.948	1.00	95

NC = Not Calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|\text{Sample Result} - \text{Duplicate Result}|}{\text{Average Result}} \times 100$$



Analytical**Technologies**, Inc.

GENERAL CHEMISTRY ANALYSIS

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR

PARAMETER	DATE PREPARED	DATE ANALYZED
PH	-	10/13/94
TOTAL SUSPENDED SOLIDS	10/17/94	10/18/94

GENERAL CHEMISTRY ANALYSIS  
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR UNITS : -

---

ATI I.D. #	CLIENT I.D.	PH
410101-1	GW-TS-EFFL-20	7.5
410101-2	GW-TS-EFFL-60	7.2

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ATI I.D. # 410101

GENERAL CHEMISTRY ANALYSIS  
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
 PROJECT # : -  
 PROJECT NAME : VWR - PORTLAND OR UNITS : -

PARAMETER	ATI I.D.	SAMPLE	DUP	SPIKED	SPIKE	%
		RESULT	RESULT	RPD	RESULT	ADDED
PH	410102-3	6.75	6.72	0	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY ANALYSIS  
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

ATI I.D. #	CLIENT I.D.	TOTAL SUSPENDED SOLIDS
410101-1	GW-TS-EFFL-20	41
410101-2	GW-TS-EFFL-60	52
METHOD BLANK	-	<10



GENERAL CHEMISTRY ANALYSIS  
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER  
PROJECT # : -  
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC.
TOTAL SUSPENDED SOLIDS	LCS	<10.0	N/A	N/A	303	305	99
TOTAL SUSPENDED SOLIDS	410141-1	<10.0	<10.0	NC	N/A	N/A	N/A

NC = Not calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

560 Huches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

DATE: 10-12-94

Page 1 of 1

ATI ACCESSION # 410101

COMPANY: UNIVAR Corp./VWR  
 REPORT TO: George Sylvester  
 ADDRESS: 32131 Steven Way  
 CONIFER CO. 80433  
 PHONE: (303) 838-5898 FAX: (303) 838-8059  
 PROJECT MANAGER: George Sylvester  
 PROJECT NUMBER:  
 PROJECT NAME: VWR PORTLAND OR.

ATI will DISPOSE / RETURN samples (circle one)

Sample ID	Date	Time	Matrix	LabID
GW-TS-EFFL-20	10-12-94			1
GW-TS-EFFL-60	10-12-94			2
GW-TS-EFFL-SUR	10-13-94			3
GW-TS-Cold	10-12-94			4
TRIP BLANK				5

FUELS		ORGANIC COMPOUNDS		METALS	TCLP	OTHER
TPH-HC/ID BTEX/TPH-G combo	WA/OR	8240 GCMS Volatiles	8270 GCMS Semivolatiles	Metals (Indicate below *)	TCLP-Volatiles (ZHE-8240)	Total # of Containers/sample
BTEX (by 8020)	WA/OR	8080 Pesticides/PCBs	8010 Halogenated VOCs	Total Lead	TCLP-Semivolatiles (8270)	
TPH-G	WA/OR	PCB only (by 8080) STD/10 level	8020 Aromatic VOCs	Priority Pollutant Metals (13)	TCLP-Pesticides (8080)	
TPH-D	WA/OR	8310 HPLC PAHs	8040 Phenols	TAL Metals (23)	TCLP-Herbicides (8150)	
8015 modified	WA/OR	8140 OP Pesticides	8150 OC Herbicides	TCLP-Metals (8 metals)	% Moisture (please indicate)	
418.1					Color	
413.2						
AK-GRO						
AK-DRO						

Turnaround Time	Sample Receipt	Relinquished By:	Relinquished By:	Relinquished By:
STANDARD TAT	TOTAL # CONTAINERS RECD?	<i>8/12/94</i>	Date: <i>10/13/94</i>	Date: <i>10/13/94</i>
1 WEEK TAT	COC SEALS PRESENT?		Time: <i>12:47</i>	Time: <i>12:47</i>
4 WORK DAY TAT	COC SEALS INTACT?			
3 WORK DAY TAT	RECEIVED COLD?	Received By: <i>J. B. KARIS</i>	Received By: <i>J. B. KARIS</i>	Received By: <i>J. B. KARIS</i>
2 WORK DAY TAT	RECEIVED INTACT?	Date: <i>10-12-94</i>	Date: <i>10-13-94</i>	Date: <i>10-13-94</i>
24 HOUR TAT	RECEIVED VIA:	Time: <i>12:47</i>	Time: <i>12:47</i>	Time: <i>12:47</i>
Special Instructions:				
* Metals needed:				



Analytical**Technologies**, Inc.

## APPENDIX

## ANALYSIS REPORT

Analytical Technologies, Inc.  
 560 Naches Avenue SW  
 Suite 101  
 Renton, WA 98055  
 Attention: Victoria Bayly

Date Received: 10/13/94  
 Date Reported: 10/27/94

Project #: 410101  
 PO Number: 44642  
 Date Sampled: 10/12/94

## Water Samples

PARAMETER	UNITS	RESULT
94-A019380		
Client ID: 410101-1		
Biochemical Oxygen Demand	mg/l	36.
Total Organic Carbon	mg/l	37.
Chemical Oxygen Demand	mg/l	86.
Color	unit	60.
Total Cyanide	mg/l	< 0.005
Ammonia Nitrogen	mg/l	0.66
Nitrate + Nitrite	mg/l	2.9
Total Phenol	mg/l	0.075
Sulfide	mg/l	1.0
Sulfate	mg/l	12.
Surfactants	mg/l	0.1
94-A019381		
Client ID: 410101-2		
Biochemical Oxygen Demand	mg/l	39.
Total Organic Carbon	mg/l	36.
Chemical Oxygen Demand	mg/l	110
Color	unit	70.
Total Cyanide	mg/l	0.007
Ammonia Nitrogen	mg/l	0.63
Nitrate + Nitrite	mg/l	2.9
Total Phenol	mg/l	0.041
Sulfide	mg/l	1.4
Sulfate	mg/l	14.
Surfactants	mg/l	0.1
94-A019382		
Client ID: 410101-4		
Color	unit	< 5

Reported by:

Kathy Fugiel

## METHODOLOGY REPORT

AM TEST ID 94-A019380  
CLIENT ID 410101-1

MATRIX : Water  
SAMPLED: 10/12/94

ANALYTE	UNITS	METHOD NUMBER	METHOD REFERENCE	DETECTION LIMIT *	DATE OF ANALYSIS
Biochemical Oxygen Demand	mg/l	405.1	EPA	10	10/13/94
Total Organic Carbon	mg/l	415.1	EPA	1.0	10/26/94
Chemical Oxygen Demand	mg/l	410.4	EPA	10	10/26/94
Color	unit	110.2	EPA		10/13/94
Total Cyanide	mg/l	335.2	EPA	0.005	10/25/94
Ammonia Nitrogen	mg/l	350.1	EPA	0.005	10/19/94
Nitrate + Nitrite	mg/l	353.2	EPA	0.010	10/21/94
Total Phenol	mg/l	420.2	EPA	0.005	10/14/94
Sulfide	mg/l	376.1	EPA	1.0	10/18/94
Sulfate	mg/l	375.4	EPA	1.0	10/24/94
Surfactants	mg/l	425.1	EPA	0.1	10/14/94

SM = Standard Methods for the Examination of Water and Wastewater 18th ed.  
SW-846 = Test Methods for Evaluating Solid Waste Physical/Chemical Methods  
EPA = Methods for Chemical Analysis of Water and Wastes 1983  
\* Instrument Detection Limit

## ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.  
Victoria BaylyDate Received: 10/13/94  
Date Reported: 10/27/94  
P.O. No.: 44642  
Project No.: 410101

## QUALITY CONTROL - CONVENTIONALS - BLANK

AM TEST Sample Number  
Client IdentificationBLANK  
-----

ANALYTES	UNITS	RESULTS
Total Phenol	mg/l	ND
Sulfide	mg/l	ND
Surfactants	mg/l	ND
Total Cyanide	mg/l	ND
Ammonia Nitrogen	mg/l	ND
Nitrate + Nitrite Nitrogen	mg/l	ND
Total Organic Carbon	mg/l	ND
Biochemical Oxygen Demand	mg/l	ND
Chemical Oxygen Demand	mg/l	ND
Color	units	ND

ND = Not Detected

Analytical Technologies, Inc.  
Victoria Bayly

Date Received: 10/13/94  
Date Reported: 10/27/94  
P.O. No.: 44642  
Project No.: 410101

## QUALITY CONTROL - CONVENTIONALS - DUPLICATES

ANALYTES/UNITS/SAMPLE NOS.	SAMPLE VALUE	DUPLICATE VALUE	RELATIVE PERCENT DIFFERENCE (%)
Total Phenol (mg/l) 94-A019380	0.075	0.072	4.1
Sulfide (mg/l) 94-A019380	1.0	1.0	0.
Surfactants (mg/l) 94-A019380	30.	30.	0.
Nitrate + Nitrite Nitrogen (mg/l) 94-A019646	7.4	7.6	2.7
Total Cyanide (mg/l) 94-A019380	<0.005	<0.005	-
Total Organic Carbon (mg/l) 94-A019380	37.	38.	2.7
Biochemical Oxygen Demand (mg/l) 94-A019380	39.	38.	2.7
Chemical Oxygen Demand (mg/l) 94-A019265	<10.	<10.	-
Color (units) 94-A019380	60.	60.	0.

< = less than

## ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.  
Victoria Bayly

Date Received: 10/13/94  
Date Reported: 10/27/94  
P.O. No.: 44642  
Project No.: 410101

## QUALITY CONTROL - CONVENTIONALS - MATRIX SPIKES

ANALYTES/SAMPLE NOS.	SAMPLE VALUE (mg/l)	SAMPLE + SPIKE (mg/l)	SPIKE CONCENTRATION (mg/l)	RECOVERY (%)
Total Phenol 94-A019381	0.041	0.24	0.20	99.
Sulfide 94-A019381	1.4	51.	48.1	103.
Nitrate + Nitrite Nitrogen 94-A019647	46.	72.	25.	104.
Total Cyanide 94-A019381	0.007	0.19	0.20	91.
Total Organic Carbon 94-A019381	36.	84.	50.	96.

## ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.  
Victoria Bayly

Date Received: 10/13/94  
Date Reported: 10/27/94  
P.O. No.: 44642  
Project No.: 410101

## QUALITY CONTROL - CONVENTIONALS - STANDARD REFERENCE MATERIALS

ANALYTES/SRM NOS.	SRM VALUE (mg/l)	TRUE VALUE (mg/l)	RECOVERY (%)
Total Phenol			
WS 32-1	0.16	0.17	94.
Sulfide	CK STD	12.02	100.
Surfactants*			
50 CK STD	48.4	50.0	97.
Total Cyanide			
WS 31	0.337	0.340	99.
WP 30	0.24	0.25	96.
Ammonia Nitrogen			
WP 31	7.43	7.70	96.
Nitrate + Nitrite Nitrogen			
WP 30	6.41	5.90	109.
Total Organic Carbon			
WP 32.2	42.3	44.0	96.
Biochemical Oxygen Demand			
GLUCOSE	190.	200.	95.
Chemical Oxygen Demand			
WP 31	77.2	70.9	109.

\*Reported in micrograms (ug).

REPORTED BY

KF/pb

Kathy Fugiel



Analytical **Technologies, Inc.**

560 Naches Ave SW, Suite 101, Renton, WA 98055 (206) 228-8335

PLEASE FAX A SIGNED COPY OF THIS COC TO THE PROJECT MANAGER ASAP

SEND-OUT LAB: Amtest Date: 10/13/94 Page: 1 of 1

# Chain of Custody

LABORATORY NUMBER:

Project Manager Victoria Bayley

## ANALYTICAL TECHNOLOGIES, INC.

560 Naches Ave SW, Suite 101  
Renton, WA 98055  
(206) 228-8335

### SAMPLE DISPOSAL INSTRUCTIONS

ATI Disposal       Return

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
410101 - 1	10/12/94		H <sub>2</sub> O	
	- 2			
	- 4			

ANALYSIS REQUEST																						
8240 GC/MS Volatiles	8270 GC/MS BNA's	8310 HPLC PNA's	8080 Pest/PCB's	PCB's only	8150 Herbicides	TOC 9060	F0X-9020- <del>TCCLP</del>	BOD	COD	CYANIDE	MBAS	NITRATE/NITRITE, NH <sub>3</sub> N	PMMETALS Sulfate	EPTOX METALS	TCLP METALS	TCLP 8240 (ZHE)	TCLP 8270	TCLP 8150	TCLP 8080	PHENOLS, total	% MOISTURE	NUMBER OF CONTAINERS
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	7	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	7	
					X																1	

PROJECT INFORMATION		SAMPLE RECEIPT		RELINQUISHED BY: 1.		RELINQUISHED BY: 2.		RELINQUISHED BY: 3.			
ATI PROJ. #:	410101	TOTAL NUMBER OF CONTAINERS		Signature:	Time:	Signature:	Time:	Signature:	Time:		
ATI PROJ NAME:		COC SEALS/INTACT? Y/N/NA		<u>V. Bayley</u>	10/13/94						
CLIENT PROJ.:		RECEIVED GOOD COND./COLD		Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:		
44642		RECEIVED VIA:		<u>V. Bayley</u>	10/13/94						
SPECIAL INSTRUCTIONS: FAX by 10/27 VERBAL DUE: 10/27 HARDCOPY DUE: 10/13		WATCH HOLD TIMES! Thru 10/13		Company:	ATI - USA	Company:	ATI - USA	Company:	ATI - USA		
PRICE: _____		DISC: _____ %		RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: 3.					
DIGESTION NEEDED?				Signature:	Time:	Signature:	Time:	Signature:	Time:		
				Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:		
				Company:	Company:	Company:	Company:	Company:	Company:		
<i>James A Lafave 10/13/94</i>										ANALYTICAL TECHNOLOGIES, INC.	

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001  
Portland (503) 684-0447 • Anchorage (907) 248-8273 • Albuquerque (505) 344-3777 • Ft. Collins (303) 490-1511

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